Architectural Overview

This chapter, intended for system administrators and administrators, provides an overview of the Outbound Option architecture.

The Outbound Option Dialer component is designed to maximize resources in a contact center by dialing several customers per agent. After reaching a live contact, the Outbound Option Dialer component transfers the customer to an agent along with a screen pop to the agent's desktop. To optimize use of available agents, the Outbound Option Dialer component calculates the average amount of time an agent waits to receive a call and the average call handle time per agent. With this information, the Outbound Option Dialer component calculates the number of lines to dial so that agent wait time is kept to a minimum.

Unified CCE Software Overview

This section provides a high-level overview of Unified CCE software, which must be installed and configured before installing Outbound Option.

Note See Chapters 3-5 for detailed information about installing Unified CCE and Outbound Option software.

Before installing Unified CCE software, the virtual machine guests must have the Microsoft Windows operating system and, for some components, Microsoft SQL Server database management software installed. Also, ensure that there is enough disk space available on each system to install the Unified CCE component.

See theCompatibility Matrix for Unified CCE for information on operating system and software requirements.

Unified CCE software contains the following components:

- **Router**: The component of the Central Controller that makes routing decisions. It gathers and distributes data to and from remote sites.
- **Logger**: The component of the Central Controller that controls the central database.

- **Administration & Data Server**: Known as the Admin Workstation in previous releases, the Administration & Data Server is the user interface for Unified CCE software. The Administration & Data Server can be located at any central or remote site. It allows users to monitor call handling within the system and change configuration data or routing scripts.
- **Peripheral Gateway**: The interface between the Unified CCE platform and third-party hardware in each call center, such as an ACD. A Peripheral Gateway (PG) is typically located at the call center.

Install the Peripheral Gateway from the PG Setup program; install the other components from the Web Setup program.

Together, the Router and Logger compose the Central Controller and are installed at a central site. At least one Peripheral Gateway is typically installed in each call center. Administration & Data Servers can be installed at a central site, a call center, or at a separate admin site.

Outbound Option Software Components

This section provides details about the server processes of the Outbound Option system:

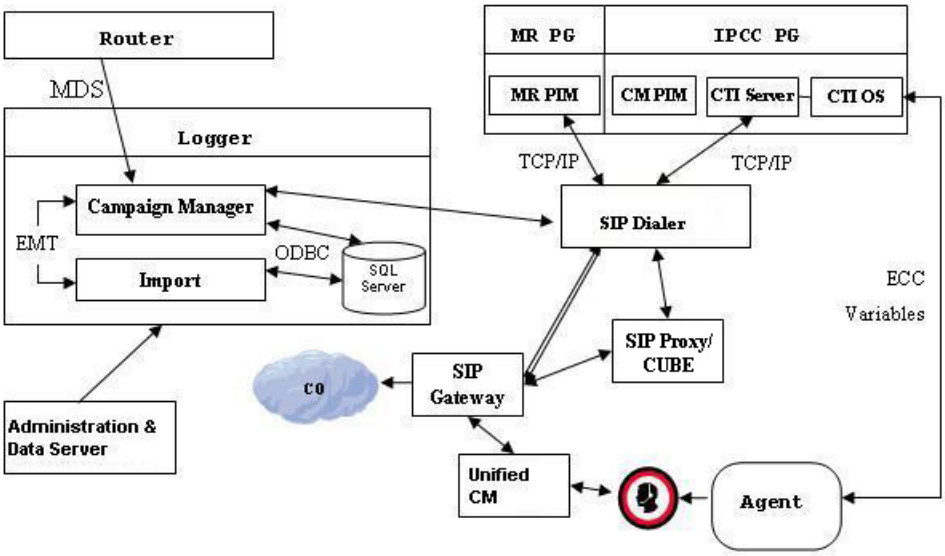
- **Campaign Manager**: Manages lists.
- **Outbound Option Import**: Reads customer import files and generates database lists.
- **Outbound Option Dialer**: Maximizes the resources in a contact center by dialing several customers per agent. This component resides on the PG server, where it performs the following actions:
  - Dials customers
  - Reserves agents
  - Performs call classification
  - Calculates agent availability
  - Keeps outbound dialing at a level where the abandon rate is below the maximum allowed abandon rate

The Outbound Option components provide a user interface where configuration data can be entered. The Outbound Option server processes use this configuration data to configure campaigns.

Outbound Option Component Relationships

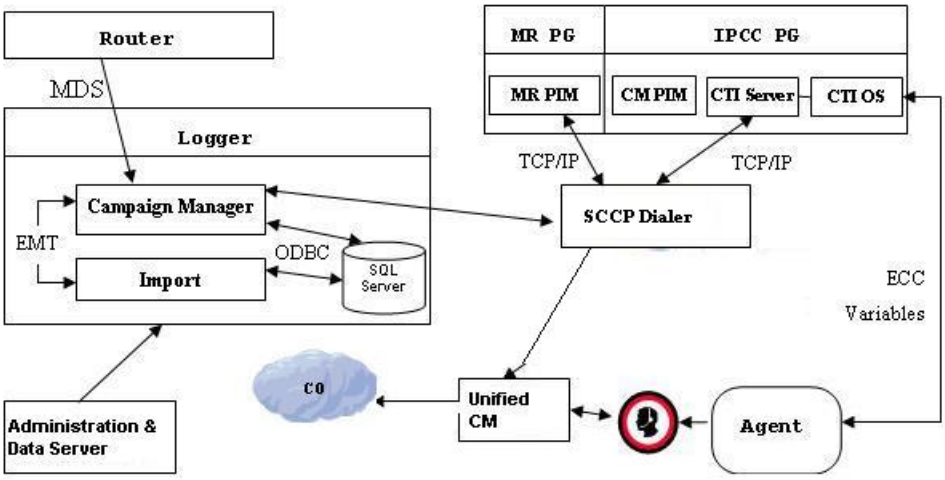
The following figure shows the component relationships within an Outbound Option deployment that uses the SIP Dialer. These relationships include the Unified CCE software components that Outbound Option uses.

Figure 1: Outbound Option Network Component Relationship (SIP Dialer)



The following figure shows the component relationships within an Outbound Option deployment that uses the SCCP Dialer.

Figure 2: Diagram of Outbound Option Network Component Relationship (SCCP Dialer)



Outbound Option Campaign Manager Component

The Campaign Manager component, which resides on the Logger, is responsible for:

- Managing when a campaign runs.
- Maintaining system and dialer configurations.
- Deciding which contact records to retrieve from a campaign based on configurable query rules and delivering those contact records to dialers.

  Records for callbacks are sent to the Dialer only when agents are logged in, and are controlled by registry values as described in Chapter 6, "Configuring Campaigns and Imports".
- Distributing configuration data to the import process and all available dialers in the system.
- Collecting real-time and historical data and sending it to the Router.
- Managing the Do Not Call list to ensure that no records on it are sent to the Dialers.
- Performing record queries based on the following order:
  - Callback
  - Retry Zone1
  - Retry Zone2
  - Pending Zone1
  - Pending Zone1 DST
  - Pending Zone2
  - Pending Zone2 DST

  Based on this order, the priority for the Retry record is higher than for the Pending record. However, the Pending record priority can be set above the Retry record by setting the "PendingOverRetryEnabled" registry key to **1** (default is 0). If the value is set to **1**, the record query order would be:
  - Callback
  - Pending Zone1
  - Pending Zone1 DST
  - Pending Zone2
  - Pending Zone2 DST
  - Retry Zone1
  - Retry Zone2

Related Topics

Registry Settings

Outbound Option Import Component

The Outbound Option Import component resides on the Unified CCE Logger. The Import component imports a Contact list, which contains the phone numbers that Outbound Option dials. In addition, the Import component uses the scheduling configured in the Outbound Option components to process imports that are scheduled for a particular date and time.

When the Import component processes an import, the following steps occur:

1. Imports a Contact list into a table.
2. Builds a dialing list for a campaign.
3. Performs region prefix matching.

Note Outbound Option can continue to run a campaign while an import is in progress; however, some of the campaign's query rules might be disabled.

Outbound Option Dialer Component

The Outbound Option Dialer component, which resides on the PG server, performs the following actions:

- Dials customers. In a deployment with the SIP Dialer, the Dialer component dials customers using the voice gateways. In a deployment with the SCCP Dialer, the Dialer component dials customers using Unified CM.
- Reserves agents through the Media Routing (MR) interface.
- Performs call classification.
- Calculates agent availability by monitoring campaign skill groups via the CTI Server interface to the agent PG.
- Transfers answered customer calls to reserved agents.

SIP Dialer

Unified CCE Release 8.5(1) offers the Session Initiation Protocol (SIP) Dialer alongside the Skinny Call Control Protocol (SCCP) Dialer that has been the sole Dialer offered in previous releases of Outbound Option. In an Outbound Option deployment that uses the SIP Dialer, the Voice Gateway handles functions such as dialing, call control, and Call Progress Analysis for Outbound campaigns rather than the Unified CM. This process increases the number of Outbound agents that a deployment can service on a PG, and reduces the number of PGs and Dialers customers must deploy for larger enterprise systems.

The following table summarizes feature differences between the SIP Dialer and the SCCP Dialer.

SIP Dialer	SCCP Dialer
Use the voice gateway or CUBE dial peers and Unified SIP Proxy routing policies for outbound call routing	Use the Unified CM routing and dial plans for outbound call routing
No need to configure Unified CM translation pattern to support Campaign Automatic Number Identification (ANI)	Need to configure Unified CM translation pattern to support Campaign ANI
Perform CPA at gateway DSP resource	Perform CPA at Unified CM dialer port
CPA supports both G.711 and G.729 codecs	CPA supports only G.711 codec
No need to configure dialer port on Unified CM	Need to configure dialer port on Unified CM
Call Throttling supports 60 CPS per dialer	Call Throttling supports 5 CPS per dialer
Dialer need NOT be in proximity of voice gateway	Dialer needs to be in proximity of voice gateway
Supports 1500 dialer ports	Supports 120 dialer ports
Supports warm standby architecture	Does not support warm standby architecture
Requires one MR PIM for MR PG	Requires two MR PIMs for duplex SCCP Dialers, and one MR PIM for simplex SCCP Dialer
Only connected outbound calls, which are transferred to agents or IVR, go through Agent PG and Unified CM	*All* the outbound calls go through Agent PG and Unified CM

Dialer Port Allocation

The dialer component reserves agents when it sees agents have become available. The Dialer requests skill group statistics from the agent PG every two seconds and attempts to reserve agents based on the number of available agents and the number of dialers active for this PG. If there are two dialers, each dialer attempts to reserve no more than half of the available agents. If there is only one agent left in the queue, the first dialer to see the available agent reserves it. The dialers are not synchronized. When the dialers are underused, one dialer may reserve more agents than the others, because it is more likely to see an agent become available.

For example, both dialers ask every two seconds. If Dialer 2 always asks about agent availability right after Dialer 1, then Dialer 1 is always ahead on requesting agents and reserves more agents. Unless the agent becomes available after Dialer 1 asks, Dialer 2 receives fewer reservations.

Note Load balancing between Dialers increases as they get busier service for larger or multiple campaigns.

The Dialer component allocates available dialer ports based on need. Campaign skill groups with more available agents or that are dialing more lines per available agent receive a greater percentage of the available ports.

For example, in a two-dialer system, when one campaign dials three lines per agent with six available agents, the Dialer reserves nine ports for dialing, plus three ports to reserve agents because it is sharing agent resources with its dialer peer. If multiple campaigns are active and the number of ports that are needed is greater than the number of ports that are available, ports are distributed in proportion to the lines per agent multiplied by the available agents for each campaign.

Each dialer checks agent availability to make reservation requests based on the skill group statistic refreshes that occur every two seconds. When skill groups for multiple campaigns are active for one or more of the same agents, then one campaign always reserves that agent or agents. You can avoid this situation by scripting the reservation scripts to queue reservation calls using the same mechanism that is described for queuing personal callback reservation requests. This resolution ensures a more even distribution of calls for active campaigns that share a common agent pool.

For example, in the following scenario where two campaigns are in progress:

- Campaign 1 has four available agents and is dialing two lines per agent, which has a relative weight of eight (two lines each for four agents).
- Campaign 2 has one available agent, but is dialing at four lines per agent, which has a relative weight of four (four lines for one agent).

To dial customers for all available agents requires 12 ports, but only 9 ports are available.

The results:

- Campaign 1 gets 2/3 of the remaining ports, or six of the remaining ports.
- Campaign 2 gets 1/3 of the remaining ports, or three of the remaining ports.
- Each dialer begins dialing using the ports assigned to it, and assigns additional ports to the campaigns when new ports become available.

Port Allocations for Campaign Modes

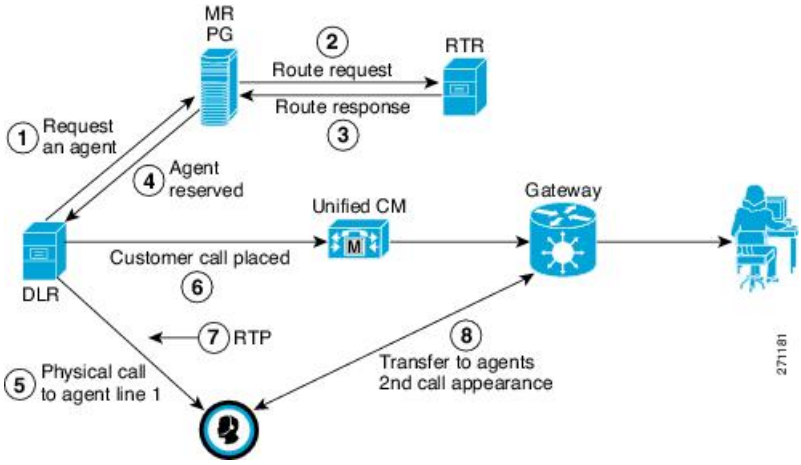
Preview, Predictive, and Progressive campaigns require at least two ports to place calls because they require at least one port to reserve the agent and one port to dial the customer. Because campaigns are shared across active dialers that service a PG, this maximum number of active campaigns applies to the PG.

Transfer to VRU and Direct Preview calls only require one port. Transfer to VRU calls do not reserve the VRU port before dialing, and Direct Preview calls use the agent's phone to place the call.

Outbound Option Dialer Process Flow

The following figure displays a call flow for an agent-based campaign in an SCCP Dialer deployment.

Figure 3: Agent-Based Campaign Call Flow

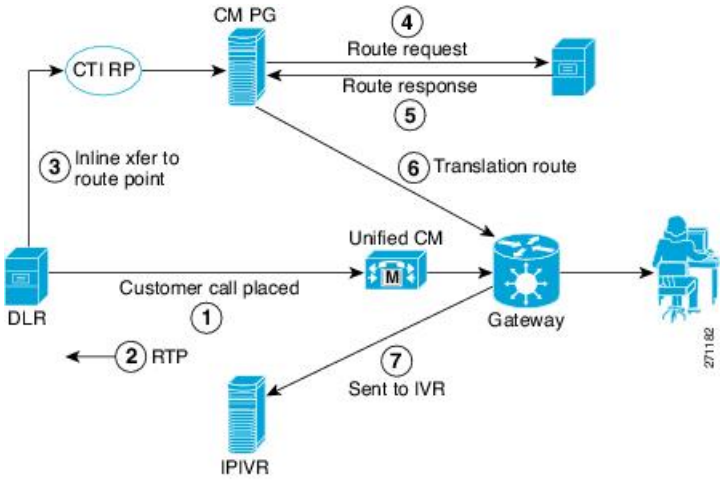


1. The Dialer process continually monitors peripheral skill group statistics from the CTI Server for an available agent. Concurrently, the Campaign Manager monitors the database for customer records and forwards active records to the Dialer. When the Dialer identifies an available agent for use in an outbound campaign, it sends a route request to the MR PIM.
2. The MR PIM forwards the route request to the Router.
3. The Unified CCE Router executes a routing script, selects an available agent, reserves that agent, and then returns a routing label (phone extension) identifying the reserved agent.
4. The MR PG returns the label for an available agent to the Dialer.
5. The Dialer then places a reservation phone call to the agent's phone extension. The Dialer auto-answers the reservation call for the agent using the CTI Server and then places that reservation call on hold.
6. The Dialer initiates the customer call using Unified CM and voice gateway.
7. If call progress analysis is configured, the Dialer process analyzes the RTP stream to detect a live answer (or answering machine detection). When a live answer is detected, the Dialer immediately initiates a transfer of the call (along with call context for screen pop) to the next reserved agent extension from the list maintained by the Dialer. Similarly, if answering machine detection is enabled, the call can be transferred to the agent, to an IVR, or dropped. The transferred call arrives on a second line appearance on the agent IP phone (thus a second line appearance for the Unified CCE extension in Unified CM must be enabled for Unified OUTDs).
8. The Dialer auto-answers the transferred call for the agent via the CTI Server, so that the voice path between the customer and the agent can be quickly established. This action releases the dialer port used to call the customer. The Dialer then hangs up the reservation call to this agent. The Dialer also updates the Campaign Manager to indicate a live answer was detected for this call. After the agent finishes handling the outbound call, the agent can be reserved for another outbound call via the same message flow.

Transfer to VRU Call Flow

The following figure displays a call flow for an VRU-based campaign in an SCCP Dialer deployment.

Figure 4: VRU-Based Campaign Call Flow



1 The Dialer starts a call to the customer.

2 The Real Time Port (RTP) stream is analyzed and voice is detected.

3 The Dialer requests an in-line transfer to a preconfigured route point.

4 The Unified CM PG requests translation route for the Router.

5 The Router responds.

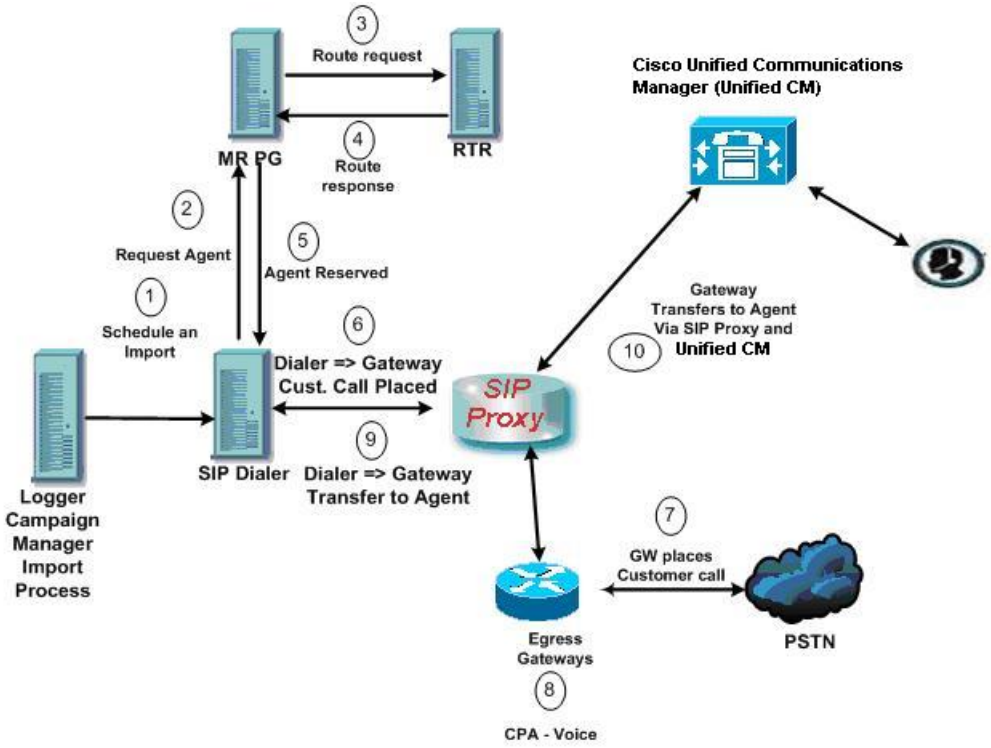
6 The response is translated and sent to Unified CM.

7 Unified CM transfers the call to the VRU, for example IPIVR.

Transfer to Agent Call Flow: SIP Dialer with SIP Proxy

The following figure illustrates a Transfer to Agent Call Flow in a deployment with a SIP Dialer that is connected to a SIP Proxy.

Figure 5: Transfer to Agent Call Flow - SIP Dialer with SIP Proxy



1. An agent campaign starts. Customer records are delivered to the Dialer.

2 to 5. An agent is reserved with a virtual placeholder call.

6 to 7.The dialer asks the gateway (via proxy) to place a call, and it does.

8. The Voice Gateway performs Call Progress Analysis and detects live voice. Media is terminated at the VGW until the CPA completes.

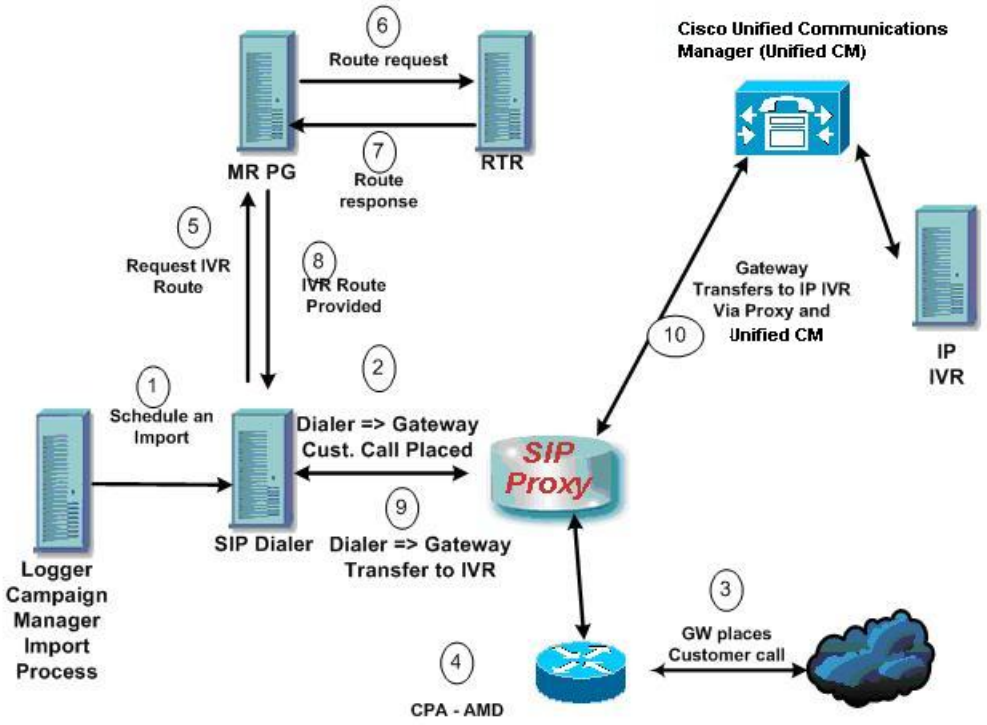
9. The dialer is notified and asks the voice gateway (via proxy) to transfer the call to the agent.

10. The Voice Gateway sets up the customer call with the voice agent (via proxy) and the UC Manager.

Transfer to VRU Call Flow: SIP Dialer with SIP Proxy

The following figure illustrates a Transfer to VRU Call Flow in an Outbound Option deployment with a SIP Dialer connected to a SIP Proxy.

Figure 6: Transfer to VRU Call Flow - SIP Dialer with SIP Proxy

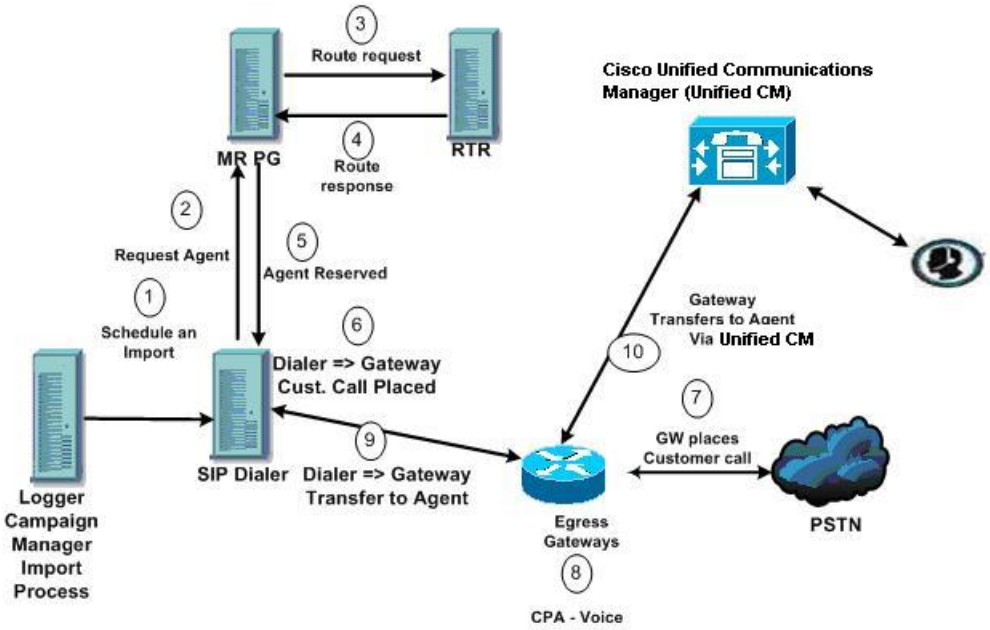


1. An unattended VRU campaign starts. Customer records are delivered to the Dialer.
2. The Dialer asks the SIP Proxy to forward an invitation to an available gateway to start a call.
3. The Gateway places the call.
4. Voice Gateway does Call Progress Analysis and detects an answering machine. The Dialer is notified.
5. The Dialer asks the MR PG where the VRU is.
6. MR PG forwards the request to the Router.
7. The routing script identifies the VRU and notifies the MR PG.
8. The MR PG forwards the route response to the Dialer.
9. The Dialer notifies the voice gateway to transfer the call to the VRU.
10. The Gateway starts the transfer to the SIP Proxy, and the SIP Proxy forwards the invitation to the Unified CM. Unified CM forwards the call invitation to the VRU, and media is set up between the Gateway and the VRU.

Transfer to Agent - SIP Dialer with No SIP Proxy

The following figure illustrates a transfer to agent call flow in an Outbound Option deployment with a SIP Dialer without a SIP Proxy.

Figure 7: Transfer to Agent - SIP Dialer with No SIP Proxy



1. Import is scheduled and campaign starts. Records are delivered to Dialer.
2. The Dialer looks for an available agent via the Media Routing Interface.
3. MR PG forwards the request to the Router.
4. The routing script identifies an agent and responds to the MR PG.
5. Media Routing PIM notifies the Dialer that the agent is available.
6. Dialer signals the gateway to place a call to the customer.
7. The Gateway places a call to the customer, and the Dialer is notified it is trying.
8. Call Progress Analysis is performed at the gateway. Voice is detected, and Dialer is notified.
9. The Dialer asks the voice gateway to transfer the call to the reserved agent by its agent extension.
10. The Gateway directs the call to the agent via Unified CM using dial peer configuration to locate the Unified CM. Media is set up between the Gateway and the agent's phone.

Peripheral Gateway (PG)

The peripheral gateways (PGs) are redundant in a SideA - SideB configuration; one side is active and the other side runs in standby while waiting to be activated. The dialers are co-located with the agent PGs with the dialers running in a peer model.

Agent PG

The agent PG is a primary data collection point for agent and skill group statistics. The Dialer connects to the agent PG through the CTI Server interface to monitor skill groups associated with campaigns. It uses the number of working agents and available agents to determine when to reserve agents and when to dial for agent campaigns. For 'Transfer to VRU' campaigns, the Dialer monitors the number of calls queued to determine when the Dialer component has reached the limit of VRU ports for this campaign as specified in the campaign skill group.

The agent PG also monitors all calls placed to the Dialer ports . The Dialer uses the PG representation of the call to push customer call context to the agent. The Dialer also provides information about call results so that the PG can report outbound statistics for the campaign skill group.

Campaign statistics and skill group statistics both report the number of outbound calls that reach agents. The Campaign Manager collects and reports campaign statistics. The PG collects and reports skill group statistics. The two reports can differ by a call or two for a given half hour, but they are reconciled at the end of the campaign.

Media Routing PG

The Media Routing PG (MR PG) is the interface the Dialer uses to make route requests to the Central Controller to find and reserve available agents. Each Dialer uses its own MR controller (MR PIM), and a separate dialed number is configured to differentiate requests for different campaign skill groups for agent campaigns.

In a Dialer deployment, the VRU and agent controllers (PIMs) are included in the Agent PG using the Generic PG or System PG deployment to allow the MR PG to be co-located. See the Design Guide for a quick reference on configuration limits and scalability constraints. For more information about PG deployments, seeVirtualization for Unified CCE and the Compatibility Matrix for Unified CCE pages on the DocWiki.

VRU

The Dialer uses the VRU for unassisted treatment of customer calls depending on campaign configuration for abandoned calls, answering machine treatment in an agent campaign, or for unassisted transfer to VRU campaigns.

VRU scripting is flexible in playing prompts to the user and collecting other data. It can also be a queue point to wait for the next available agent.

Partition the ports accordingly when using the same VRU for inbound and outbound campaigns. For inbound calls, do not use ports allocated for the transfer to VRU feature. For VRU ports shared between inbound and outbound applications, the Dialer might transfer customers to a VRU which does not have any available ports left. In this case, the called party hears a fast busy signal or a 'ring no answer' message. To avoid this situation, ensure that the VRU has enough ports for both inbound and outbound traffic.

Note The transfer speed between the Dialer and the VRU is usually under two seconds, but can be longer depending on the network design and configuration.

Administration and Data Server: Configuration

Use the Administration & Data Server configuration tools to configure the Unified CCE system. Enable the tools for configuring Outbound Option by editing the Administration & Data Server setup.

Cisco Unified Intelligence Center

Cisco Unified Intelligence Center (CUIC) is the standard Unified CCE reporting interface.

For details about Unified Intelligence Center, see the Cisco Unified Intelligence Center Documentation.

Dialer Reports

The Outbound Option Dialer reports provide information about the dialer platform. These predefined templates include information about performance and resource usage. The templates also enable you to determine whether you need more dialer ports to support more outbound calls.

Related Topics

Administrative/Supervisory Tasks

Outbound Option Agent Desktops

Three desktops are available for the Outbound Option: CTI Object Server (CTI OS), the Cisco Agent Desktop (CAD), and Cisco Finesse.

Related Topics

Installing Outbound Option

Cisco CTI Object Server (CTI OS)

The CTI OS component provides an object-based interface to the CTI Server using the COM, C++, Java, and .NET interfaces. These interfaces permit development of agent desktop applications that interface with Unified CCE software.

Outbound Option includes a sample agent desktop, the Cisco CTI Toolkit Outbound Desktop (Win32), with Visual Basic source code, using CTI OS.

See the *CTI OS Developer Guide for Cisco Unified ICM/Contact Center Enterprise & Hosted* for information about the CTI OS Architecture and the CTI OS Client Interface.

Cisco Agent Desktop (CAD)

Cisco Agent Desktop (CAD) is a computer telephony integration solution for contact centers that is easy to deploy, configure, and manage. The desktop provides contact center agents and supervisors with powerful tools to increase agent productivity, improve customer satisfaction, and reduce contact center costs.

CAD includes the following major components:

- Cisco Desktop Administrator
- Cisco Agent Desktop
- Cisco Supervisor Desktop
- Cisco Agent Desktop Services.

This section discusses the Cisco Agent Desktop, Cisco Supervisor Desktop, and Cisco Desktop Administrator. See the CAD documentation for detailed information about other components.

Cisco Agent Desktop

Cisco Agent Desktop displays windows on the agent PC when the call arrives, increasing the speed of call processing. The screen displayed can use a combination of elements. Cisco Agent Desktop can also populate third-party applications (databases, help desk packages, personal information managers, and so on) based on the calling number, called number, or other information that a VRU collects.

The Cisco Agent Desktop softphone allows agents to control calls from the PC. It minimizes keystrokes and saves time for agents who are working simultaneously with the phone, CTI desktop, and third-party applications. The softphone toolbar automates common telephony functions, including answer, drop, and speed dial. The toolbar also includes a taskbar, which launches applications based on telephony or data events. Agents can select from up to ten predefined task buttons to update CRM data and other applications, as well as begin automated after-call tasks, such as sending an e-mail or fax, initiating call-handling scripts, or starting other Windows-based tools.

The Chat feature allows agents to communicate with their supervisors and other agents via text messages for assistance at any time without leaving their desks or putting a call on hold.

The integrated browser allows agents to view intranet and internet web pages from within Cisco Agent Desktop.

Cisco Supervisor Desktop

Cisco Supervisor Desktop allows contact center supervisors to view and direct agent activity in real time. Without leaving their desks, supervisors can observe, coach, and communicate with agents using instant messaging. They can view agent status details, as well as view conference information. Without the caller's knowledge, supervisors can start "chat" sessions to coach agents on how to handle customer issues. Supervisors can send scrolling marquee messages to all agents or to teams of agents to broadcast important information.

Supervisors can also use the real-time audio monitoring capabilities to listen to agent conversations with customers. If necessary, they can "barge in" to calls (conference themselves into the conversation) or intercept a call (transfer a call to themselves.) Supervisors can also record agent conversations and save those recordings for up to 30 days for later review.

Cisco Desktop Administrator

Cisco Desktop Administrator allows a contact center administrator to configure how Cisco Agent Desktop looks and behaves. Using Cisco Desktop Administrator, an administrator can create work flows, configure how enterprise data is displayed, customize task buttons, and perform many more tasks to customize Cisco Agent Desktop for your contact center's particular needs.

Related Topics

Outbound Option Installation: Preliminary Steps

Cisco Finesse

Cisco Finesse provides the following applications and tools:

- A web-based desktop application for agents and supervisors. Agents and supervisors access their desktops by entering the following URL in their browsers: http://*hostname*, where hostname is the hostname or IP address of the Finesse server.
- A web service that provides contact center agent desktop functionality through a REST-like interface.
- An administration console for configuring system settings, desktop layout, wrap-up reasons, and reason codes. Administrators access this console by entering the following URL in their browsers: http://*hostname*/cfadmin, where hostname is the hostname or IP address of the primary Finesse server.

Note Cisco Finesse supports Outbound Option as follows:

- Use Progressive mode, Predictive mode, or Preview mode only. Direct Preview mode is not supported.
- Use the SIP Dialer only. SCCP Dialer is not supported.

The Finesse Agent Desktop does not support the following Outbound Option features out-of-the-box:

- scheduling a callback (regular or personal)
- adding a contact to the Do Not Call List

Note Agents who are on Progressive or Predictive Outbound Option calls do not appear in the Talking - Outbound column of the Queue Statistics gadget on the supervisor desktop. This number only includes agents who are talking on outbound calls placed by those agents.

Outbound Option Extended Call Context Variables

The Outbound Option Dialer uses CTI Extended Call Context (ECC) variables to exchange information with the CTI Toolkit Agent Desktop (Win32) for Unified CCE and with the Finesse desktop. The following table lists the ECC variables Outbound Option uses.

Note Dialer ECC variables can be passed to a VRU.

See the *Cisco Unified Contact Center Enterprise Installation and Upgrade Guide* for instructions on adding the Outbound Option ECC variables to CTI OS.

Table 1: ECC Variables for Outbound Option

ECC Variable	Description
BACampaign	Indicates the name of the Outbound Option campaign to which the call belongs.
BAAccountNumber	Identifies a customer account number and can be used by the desktop application to perform a database lookup to obtain more customer data. This ECC variable is displayed only if the data was available in the customer import file. **Note** The maximum character length of this ECC variable is 30 characters.
BAResponse	Multipurpose placeholder that sends data from the CTI Desktop to the Outbound Option Dialer. This variable responds to the reservation call to schedule and cancel callbacks, and to changes to the callback phone number. See the following rows for more information about BAResponse.

<table>
<tr><th>ECC Variable</th><th>Description</th></tr>
<tr><td>BAResponse for Preview mode</td><td>On the CTI OS desktop, when an agent uses the Accept, Reject, Reject-Close, Skip, Skip-Next, and Skip-Close buttons in Preview mode, BAResponse is set to one of the following values:
Accept: Accepts the current preview call.
Reject: Rejects the current preview call. Sets record to “R” for retry.
Reject-Close: Rejects the current preview call and closes the record so it will not be called again.
Skip: Skips the current preview call. Sets record to “R” for retry.
Skip-Close: Skips the current preview call and closes the record so it will not be called again.
On the Finesse desktop, an agent in Preview mode can respond with the following options:
<table>
<tr><th>Agent Action</th><th>BAResponse setting</th><th>Description</th></tr>
<tr><td>Accept</td><td>Accept</td><td>Accepts the current preview call.</td></tr>
<tr><td>Decline > Reject</td><td>Reject</td><td>Rejects the current preview call. Sets record to “R” for retry.</td></tr>
<tr><td>Decline > Close</td><td>Reject-Close</td><td>Rejects the current preview call and closes the record so it will not be called again.</td></tr>
</table></td></tr>
<tr><td>BAResponse for the Callback button</td><td>When an agent uses the Callback button, BAResponse is set to one of the following values:
Note Spaces are relevant and must be included in these commands.
Callback mmddyyyy hh:mm: Schedules a callback for the indicated date and time
Callback Cancel: Cancels a previously scheduled callback for this call
P#xxxxxxxxxxxxxxxxxxxx: Changes the callback phone number to the number specified by xxxx
For Preview modes, cancel the reservation call by clicking Reject.
For Predictive mode, cancel the reservation call by clicking Not Ready and then hang up the reservation call.</td></tr>
</table>

ECC Variable	Description
BAResponse for Direct Preview calls	For Direct Preview calls, any connected customer call is classified as VOICE by the Dialer (default). To reclassify the call result, the agent can click the following buttons: • **Voice**: To reclassify a call as a voice call, set the BAResponse variable to REX_VOICE. Enable the Voice button only after pressing one of the other buttons first. Pressing one of the other buttons first enables an agent to reclassify the call if needed. • **Answering Machine**: To reclassify the call as an answering machine call, set the BAResponse variable to REX_ANS_MACHINE. • **Fax/Modem**: To reclassify the call as a fax/modem call, set the BAResponse variable to REX_FAX. • **Invalid**: To reclassify the call as an invalid call, set the BAResponse variable to REX_INVALID.
BAResponse for answering machine detection in a transfer to VRU campaign	For answering machine detection on a transfer to VRU campaign, the BAResponse variable is evaluated to carry the CPA result of the customer call. Two new IF node configurations are supported: • Call.BAResponse="CPA_AnswerMachine" • Call.BAResponse="CPA_Voice" These IF nodes route to separate External Scripts to allow for different treatment depending on whether a voice or an answering machine was detected.
BAStatus	Contains two characters indicating the mode and direction of the Outbound Option Dialer initiated call. The first character identifies the call mode: • R: Reservation call, Predictive mode • G: Reservation call, Progressive mode • P: Reservation call, Preview mode • D: Direct Preview reservation call • C: Customer call • A: Reservation call, personal callback. During a reservation call, the first character is P, R, G, or A. When a customer call is transferred to an agent, the first character is C. The second character of BAStatus indicates the call direction: • O: Outbound
BADialedListID	Unique key identifying a specific customer record within the Dialing List table in the Outbound Option private database.

ECC Variable	Description
BATimeZone	Indicates the GMT offset, in minutes, for the customer's time zone and obtains the customer's local time. The format of this ECC variable is +/-#####. This field's first character is either a positive or negative sign, followed by 5 digits. For example: • This example indicates that the customer is one hour behind GMT: BATimeZone = -00060 • This example indicates that the customer is two hours ahead of GMT: BATimeZone = +00120
BABuddyName	Contains the customer's last and first name separated by a comma, which is compiled using the imported LastName, FirstName that was configured on the Import Rule Definition tab page.

Desktop Button Behavior

The following table explains the desktop button behavior when a call is placed using Outbound Option.

For more information about dialing modes, refer toDialing Modes.

Dialing Mode / Other Conditions	Call Description	Buttons Enabled
Preview	Reservation calls: Dialer places the call and agent is available.	**Accept**, **Skip**, **Reject**, **Skip-Close**, and **Reject-Close** buttons are enabled if the reservation call has not yet been accepted.
	Initial customer calls: Agent accepts the call and Dialer calls the customer.	No buttons are enabled if the customer does not answer the call.
	Transferred customer calls: Agent is talking to a customer.	**Callback** button is enabled.
Predictive and Progressive	Reservation calls: Dialer places the call and agent is available.	No buttons are enabled.
	Initial customer calls: Dialer calls the customer.	No buttons are enabled if the customer does not answer the call.
	Transferred customer calls: Agent is talking to a customer.	**Callback** button is enabled.

Dialing Mode / Other Conditions	Call Description	Buttons Enabled
Direct Preview	Reservation calls: Dialer places the call and agent is available.	**Accept**, **Skip**, **Reject**, **Skip-Close**, and **Reject-Close** buttons are enabled if the reservation call has not yet been accepted.
	Initial customer calls: Agent accepts the call and calls a customer.	No buttons are enabled if the customer does not answer the call.
	Transferred customer calls: Agent is talking to a customer.	**Callback**, **AnsMach**, **Fax**, and **Invalid** buttons are enabled. **Note** You can revert to voice if you make a mistake.
Personal Callback	BAStatus is set to A and O or A and B for a reservation call.	**Accept** and **Reject** buttons are enabled, if the reservation call has not been accepted yet.
	Initial customer calls: Agent accepts the call and calls a customer.	No buttons are enabled if the customer does not answer the call.
	Transferred customer calls: Agent is talking to a customer.	**Callback** button is enabled.

Outbound Option Scripting

Outbound Option uses Unified CCE scripting configured on the Administrative Workstation to manage campaigns.

There are two types of scripts:

- Outbound Option Administrative Scripts, on page 21
- Outbound Option Agent Reservation Scripts, on page 22

Outbound Option Administrative Scripts

Outbound Option administrative scripts enable, disable, or throttle campaign skill groups for outbound campaigns. The scripts can also automatically close out a skill group for a specific campaign based on time or any other conditional factor that the administrative script can access. This scripting is performed at the skill group level to provide more flexibility when managing larger campaigns that are distributed across multiple skill groups.

Enable a campaign skill group by setting the campaign mode to one of the available modes: Preview, Direct Preview, Progressive, or Predictive. (For more information about these modes, see Dialing Modes.) Schedule an administrative script to run at regular intervals. Disable the campaign skill group in the administrative script by creating a script node to change the campaign mode to inbound for that skill group.

You can also use this script to control the percentage of agents to be used in a campaign skill group and whether this skill group is used for other campaigns or inbound calls.

Note An administrative script controls a campaign skill group. A campaign skill group can be mapped only to one campaign at a time. A skill group can be reused if new campaigns are added. If a campaign skill group is recycled, reuse its administrative scripting as well. However, note that although it is possible to have two administrative scripts controlling the same skill group, conflicting campaign mode requests for Outbound Option can result.

Outbound Option Agent Reservation Scripts

Two types of routing scripts are described later in this document. One is for Agent Campaign and one is for VRU Campaign.

The Dialer uses Reservation scripts to reserve agents for specific outbound campaigns and personal callbacks. With this type of script, the Dialer makes a route request via its Media Routing Client using the dialed number that is configured for the campaign skill group. Each campaign has its own dialed number and reservation scripting. If an agent is not available, the default behavior is for the script to end the call and the Dialer receives an error. The Dialer retries the reservation request when it sees available agents in the skill group statistics as described in the Dialer description earlier in this chapter. You can queue reservation calls which have scripts that distribute agents across campaigns when those agents are skilled for multiple, active campaigns.

A call can be transferred to a VRU as part of a transfer to VRU campaign, or transferred to non-VRU campaigns for answering machine or abandons. A transfer to VRU campaign places a route request call to a CTI Route Point dialed number on the Agent PG, which enables the call context of the customer call to be transferred to the VRU. A new call context can be added to the call while the call is being treated at the VRU.

Fault Recovery

This section describes Outbound Option behavior when specific components fail and recover.

Campaign Manager Fault Recovery

The Campaign Manager resides on Logger Side A. Logger Side B has no Campaign Manager, so only one Campaign Manager runs in the environment.

If the Unified CCE Router and MR PG are still accessible when the Campaign Manager process shuts down, the Dialer can still reserve outbound agents for an agent campaign. In this case, the Dialer continues to dial contacts and saves the results until it processes all the cached calls in memory.

When the Dialer processes all its cached records, it cannot dial more calls until the Campaign Manager process recovers and more records can be sent to the Dialer.

When the Campaign Manager is back online, it updates call results based on the information it receives from the Dialer. A few records can be lost when the Campaign Manager is not available.

Dialer Fault Recovery

SIP Dialer

The SIP Dialer architecture supports a single active dialer per peripheral. You only must configure one SIP Dialer. To install more Dialers, install each on a separate PG platform, but assign them the same Dialer Name.

The Campaign Manager activates the standby Dialer, if there is a standby Dialer in ready state, when the Campaign Manager detects that the Dialer state has changed from ready to not ready or that the connection from the active Dialer is lost.

The Dialer returns all active and pending records to the Campaign Manager (dialer flush), or closes them internally if the link to the Campaign Manager is not available. Active calls are canceled if the call is not connected, abandoned if the call is connected but not yet transferred to the agent or VRU, or continued if the call is already transferred and the PG/CG does not fail during that time. If the Campaign Manager detects that the Dialer state has changed from ready to not ready or that the connection from the active Dialer has been lost and the Dialer does not respond within a certain time period, the Campaign Manager marks all outstanding records with an Unknown status and returns them to Pending status.

SCCP Dialer

The Dialers run in a peer mode for a given Peripheral Gateway and Agent Controller. The Dialer asks the Campaign Manager for records for a given active campaign skill group, and the Campaign Manager distributes records to each Dialer equally, as the Dialers request them.

When a Dialer shuts down, the Campaign Manager marks its records with a “U” to indicate that the Dialer has an unknown state. After an hour, the Campaign Manager sets the records back to a pending state (“P”), so that the records can be retried. The active agent PG continues to track and report on existing Outbound Option agent calls in the campaign’s skill group. Tracking and reporting is reflected in the Campaign Consolidated reports.

For example, assume that two dialers are running for an agent skill group. When one Dialer shuts down, the other Dialer continues to dial records for the active campaigns. Dialing capacity is reduced.

If the Agent PG becomes unavailable, or is reported as out of service, the Dialer's memory flushes calls that have not been dialed, and cancels calls in progress.

If Unified CM fails, the Dialer ports unregister and calls in progress end. The Dialer component stays offline until the Unified CM subscriber recovers. To avoid overloading any subscriber with traffic from multiple Dialers, Cisco recommends that no Dialer port has backup Unified CM subscribers.

Outbound Option implements a load balancing paradigm at the Outbound Option Dialer component level. If a dialer process terminates for any reason, other dialers at the same location become aware of this information and attempt to take over the failed dialer’s load, resources permitting. The Outbound Option Campaign component marks records contained in the failed dialer with a status of “U” for unknown. These records are reset every hour to a Pending (“P”) state. If the disconnected dialer is offline due to a network outage, the disconnected dialer caches call results and updates its records to the correct call result.